



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Bruce A. Scheffer et al.

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Serial No.:

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For: METHOD AND APPARATUS FOR
EFFECTING SHINGLING OF
CONVEYED PRINTED PRODUCTS

Attorney

Docket No.: 74047

Box PATENT APPLICATION
Assistant Commissioner for Patents
Washington, DC 20231

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Applicants through their undersigned attorneys, hereby petition pursuant to 37 C.F.R.

§ 1.102(d) and MPEP § 108.02 (VIII) to make their above-identified divisional application, which
is being filed simultaneously herewith, special.

10/02/1998 WASHING 00000003 09161194
A check in the amount of \$130.00 is enclosed to cover the Petition fee under 37 C.F.R. §
130.00 OP

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1.17(i) to make this application special. The Commissioner is hereby authorized to charge any
additional fees which may be required, should the enclosed check be in the wrong amount or
entirely missing or otherwise improper, or credit any overpayment, to Deposit Account No. 23-
0920.

The claims as filed in the subject divisional application by way of a Preliminary
Amendment are believed to be directed to a single invention. If the Office determines that all of the
claims in the application are not directed to a single invention, applicants will make an election

without traverse as a prerequisite to the grant of special status.

Applicants submit that a pre-examination search in the PTO was made by applicants' undersigned attorney in Class 271, subclasses 182, 202 and 204, including the related foreign art located in the Examining Group search room. A later second patentability search was conducted in the PTO by applicants' undersigned attorney in Class 271, subclasses 182, 202 and 204, directed specifically to the subject matter defined in claims 7-22 set forth in applicants' Preliminary Amendment being filed in the subject divisional application. Prior art has also been cited by the PTO during prosecution of applicants' parent application

* * * *

Enclosed herewith are copies of the following listed patents that are presently known and believed to be most pertinent to the subject matter encompassed by applicants' claims 7-22. The listed patents are also identified in an Information Disclosure Statement (IDS) under 37 C.F.R. §§ 1.56, 1.98 and 1.99 that accompanies this Petition. Duplicate copies of the listed patents are not included with the IDS.

<u>U.S. Patent No.</u>	<u>Issue Date</u>	<u>Inventor(s)</u>
3,178,174	Apr. 13, 1965	Schneider
3,994,221	Nov. 30, 1976	Littleton
4,040,617	Aug. 9, 1977	Walkington
4,966,521	Oct. 30, 1990	Frye et al.
4,969,640	Nov. 13, 1990	Littleton
5,039,082	Aug. 13, 1991	Littleton
5,060,928	Oct. 29, 1991	Vits

<u>U.S. Patent No.</u>	<u>Issue Date</u>	<u>Inventor(s)</u>
5,143,368	Sep. 1, 1992	Kiyota et al.
5,249,791	Oct. 5, 1993	Belanger et al.
5,366,217	Nov. 22, 1994	Tokuno et al.
5,607,148	Mar. 4, 1997	Mack et al.

Detailed Discussion of the Prior Art Patents

U.S. Patent No. 4,966,521 (Frye et al.) discloses a tail stopping and knockdown device that uses a "tail-stopping device" comprising a top roll brush 24 and a slowly rotating roll 26. The roll 24 has brush members 32, 34 operative to engage the tail end of each successive sheet so as to exert sufficient pressure on an underlying sheet against the roll to cause the lower sheet to move into the stacking pile while the top sheet continues to sit on the unnipped-slow speed roll 26 waiting for the next nip of the brush member (Col. 2, line 52, to Col. 3, line 10).

U.S. Patent No. 4,969,640 (Littleton) discloses a sheet diverting system employing snubbing means for decelerating successive conveyed sheet products to facilitate overlapping or shingling of successive sheet products. The embodiments of FIGS. 9-11 employ a pair of "snubber arks" 125A, 127A fixed to a snubber shaft 131 (Col. 15, lines 54-65). The snubber support shaft 131 is driven at a ratio of 1 to 1 with respect to rotation of the rotary knife cylinder 19 (Col. 13, lines 60-63). Rotation of the snubber shaft is effective so that the snubber members depress incoming sheets against the low speed conveyor while the tail end of the next successive sheet is trapped between or has just immediately left the high speed conveyor belts 53 and 75 (Col. 14, lines 4-43).

U.S. Patent No. 3,994,221 (Littleton) discloses a sheeter that utilizes a knock-down arm 90 rotatably driven at a 1 to 1 ratio with the cutting cylinder so that the knock-down arm rotates once for each rotation of the cutting cylinder and acts once upon each sheet being fed through the machine. Means are provided for phasing the knock-down arm 90 so that it operates upon the tail end of each sheet being fed into the slow speed conveyor belt 50 (Col. 4, lines 27-41).

U.S. Patent No. 5,143,368 (Kiyota et al.) discloses a paper dodging device having a pair of upper and lower high-speed belts for feeding paper onto a low-speed belt with the upper high-speed belt being overlapped above the inlet side of the low-speed belt. A snubber 11 is disposed above the inlet side of the low-speed belt and has an outer diameter gradually increasing toward the rear side with respect to the rotational direction of the snubber so as to form paper dropping portions at the outer peripheral end of each increasing diameter for peeling the rear end of paper from the upper high-speed belt.

U.S. Patent No. 5,366,217 (Tokuno et al.) discloses a sheet stacker wherein sheets cut by a sheet cutter are conveyed into a stacking station by a conveyor with a fixed sheet interval. A pair of clamping devices 14a and 14b are operative to clamp the tail ends of cut sheets by means of rotating devices 32a having free rolls 30a that press the tail ends of cut sheets against a slowdown roll 28a, in the case of clamping device 14a, to equalize the speed of a cut sheet to the speed of the slowdown roll 28a. The clamping device 14b clamps the tail ends of cut sheets against a slowdown roll 28b to slow down each sheet to an optimum speed and send out the sheet to a second stacking zone 16b. This patent describes as prior art the device of FIG. 8 that employs a brush roll 103 having brushes 108 operative to press the tail ends of sheets against a low speed roll 104.

U.S. Patent No. 5,060,928 (Vits) discloses an apparatus for depositing sheets at a stacking station and having means for reducing the conveying speed of the sheets. The apparatus includes

two similar deflecting members 30, 31 that are spaced apart in the conveying direction and act, respectively, on a braking member 32 and a conveying member 33 arranged underneath the conveying plane. The deflecting members 30 and 31 consist of disks 36, 37, respectively, that are spaced apart on driven shafts 34, 35 and are fitted with segment-like brushes 38, 39, respectively. The brush 38 serves to press the end of a sheet 42 against the cylindrical jacket 41 to retard the speed of the sheet.

U.S. Patent No. 5,249,791 (Belanger et al.) discloses a fan delivery unit wherein a plurality of fan disks are arranged next to one another on a rotor shaft and have fan blades forming fan pockets therebetween. A device for braking printed products as they are fed into the fan pockets is provided that employs a plurality of brake rollers corresponding in number to the fan disks and which, in the embodiment illustrated in FIGS. 1-3b, employ brush segments 19a and 19b fastened onto brake rollers 18 so as to engage the trailing ends of printed products 30 for effecting braking as they enter the fan pockets.

U.S. Patent No. 5,607,148 (Mack et al.) discloses a device for removing copies diverted from a conveyed stream thereof and employs a rotating copy brake 15 having what appear to be brush type members operative to press copies 36 against suction tapes 16 decelerate movement of the copies 36 to be delivered into a main pile 19. A second upper copy brake 22 operates in a similar manner.

U.S. Patent No. 3,178,174 (Schneider) discloses an apparatus for overlapping sheets that, in the embodiment illustrated in FIGS. 5-7, employs a press-down component 19 which is driven by a rotating cross cutting means 3 so that the member 19 presses the rearward ends of sheets against underlying break bands 20.

U.S. Patent No. 4,040,617 (Walkington) discloses a sheet feeding apparatus wherein sheets fed between fast and slow conveyors have their trailing ends engaged by a dabber roller 15 that is rotated in synchronized relation with the sheet delivery on the high-speed conveyor so that the resiliently mounted rolling element nips the trailing portion of each sheet to the upstream roll of the slower speed conveyor and travels with the sheet, maintaining the nip, over and arch of rotation of the roller.

U.S. Patent No. 5,039,082 (Littleton) discloses an apparatus for decelerating and shingling a stream of regularly spaced apart sheets in a sheet processing system. Each sheet is subjected to a first plurality of snubber assemblies 123 each of which includes a snubber arch 125 operative to engage each sheet S substantially near its tail, thereby pressing the sheet onto an underlying slower speed conveyor belt to effect deceleration. The snubber arches 125 are rotated at approximately the same speed as the underlying belts 121. A deck plate 201 may be provided below the snubber to provide a solid platform against which the snubber arches 125 can trap the respective sheets S. A second deceleration and shingling system 220 is provided downstream from the snubbing means 123 to further decelerate each sheet S by means of a pair of snubber wheels 225 and 227 freely rotatable on snubber support plates 224. The snubber wheels 225 or 227 engage the tail end of an incoming sheet so as to press the sheet against the lower speed belts 229 thereby further decelerating the sheet.

None of the above- discussed patents teach or suggest a method or apparatus for shingling successive irregularly spaced sheet products cut by a rotary cutter from a continuous web of sheet material and wherein the irregularly spaced sheet products are caused to shingle as they pass from a first conveyor to a second slower speed conveyor by at least one knock-down wheel having a number of knock-down elements corresponding to the number of cutter knives on the rotary cutter

that establish the trailing edges of the irregularly spaced sheet products, the knock-down elements being angularly spaced about the knock-down wheel to correspond to the angular positions of the trailing edge cutting knife blades on the cutter and being rotated in phase relation with the cutter so that the tangential velocity of the outer ends of the knock-down elements is substantially equal to the tangential velocity of the cutting edges of the cutter knife blades, and the knock-down elements engage the trailing edges of the irregularly spaced products at substantially the same position relative to their trailing edges.

It is believed applicants' claims as presented in their accompanying divisional application patentably distinguish over the above discussed prior patents known to applicants, and expedited examination of applicants' divisional application is earnestly solicited.

Respectfully submitted,

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By



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